Cardiol Ther (2015) 4 (Suppl 1):S1–S3
DOI 10.1007/s40119-015-0044-0

COMMENTARY

Supplement: Cardiology and Therapy

Alejandro de la Sierra

To view enhanced content go to www.cardiologytherapy-open.com
Received: May 29, 2015 / Published online: June 19, 2015

INTRODUCTION

Ambulatory blood pressure monitoring (ABPM) is a tool of great value for the diagnosis and monitoring of hypertensive patients. Its principal advantages are, on the one hand, obtaining a greater number of measures in an environment closer to the individual's daily life, that better reflect the individual's real blood pressure, and, on the other hand, a better correlation with organ damage and cardiovascular prognosis [1]. ABPM is envisaged as a complementary tool in all clinical guidelines for treating hypertension and, in some cases, is obligatory for confirmation of the diagnosis [2, 3].

The role of ABPM is not limited to the diagnosis of patients, but also constitutes a useful element in the assessment of treatment and in clinical monitoring [4]. The principal mean estimators during the 24 h over which the monitoring is usually performed, such as the two periods of activity (usually during the daytime) and of rest (usually at night), are prognostically important and enable the impact of the treatment to be targeted more precisely. Furthermore, differences with clinical measurement that result in the phenotypes of white-coat hypertension and masked hypertension enable treatment response to be better defined and allow the identification of patients who will require a different therapeutic approach [5, 6].

In addition to these mean estimators, the so-called "estimators of variability", which reflect the fluctuations in blood pressure over a 24-h period, are gaining ever greater attention. Among these, the nocturnal drop in blood pressure and the standard deviations during the diurnal and nocturnal periods can be highlighted. There are also indicators that provide information on the effects of medication on monitoring, such as the trough-to-peak ratio, the smoothness index or the treatment-on-variability index [7].

Electronic supplementary material The online version of this article (doi:10.1007/s40119-015-0044-0) contains supplementary material, which is available to authorized users.

A. de la Sierra (✉)
Head, Internal Medicine Department, Hospital Mútua Terrassa, University of Barcelona, Terrassa, Barcelona, Spain
e-mail: adelasierra@mutuaterrassa.cat; asierra@ub.edu

All these variables proposed as diagnostic assessment indexes, and more specifically in assessing treatment, have been evaluated in various controlled studies in which the basis of antihypertensive treatment has been the angiotensin-receptor antagonist olmesartan. It has been observed in these studies that olmesartan and combinations of this drug with the calcium-channel blocker amlodipine, the diuretic hydrochlorothiazide or both, are able to reduce blood pressure over 24 h, diurnal and nocturnal, achieving high levels of ambulatory control [8].

Controlled clinical trials also show that treatment with olmesartan and its combinations has a duration of effect that covers the 24-h period, does not affect the circadian rhythm or nocturnal rest, regardless of whether it is administered in the morning or the evening, and effectively reduces morning blood pressure and the morning rise in blood pressure, parameters that are both related to cardiovascular and cerebrovascular prognosis [9, 10].

Other studies also show a reduction in the day-to-day variability of blood pressure, which is associated with effects such as arterial rigidity [11].

This accumulation of evidence about the pharmacological effects on ambulatory blood pressure, both mean estimators and estimators of variability, is a major step forward in the understanding of the action of antihypertensive drugs or procedures. It is to be expected that, in the future, changes in these estimators as assessed in clinical research will have a fundamental role in the selection of the most appropriate treatment(s) for hypertensive patients.

ACKNOWLEDGMENTS

This supplement has been sponsored by Menarini. The named author meets the International Committee of Medical Journal Editors (ICMJE) criteria for authorship for this manuscript, takes responsibility for the integrity of the work as a whole, and has given final approval for the version to be published.

Conflict of interest. Alejandro De la Sierra declares honoraria for participation in scientific meetings funded by Abbott, Daiichi-Sankyo, Lacer, Menarini, Merck, Sharp and Dohme, and Pfizer.

REFERENCES

1. O'Brien E, Parati G, Stergiou G, et al. European Society of Hypertension position paper on ambulatory blood pressure monitoring. J Hypertens. 2013;31:1731–68.

2. Mancia G, Fagard R, Narkiewicz K, et al. 2013 ESH/ESC Guidelines for the management of arterial hypertension. The Task Force for the management of arterial hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC). J Hypertens. 2013;31:1281–357.

3. National Institute for Health and Clinical Excellence (NICE). Hypertension. The clinical management of primary hypertension in adults. Clinical Guideline 127. 2011. http://www.nice.org.uk/guidance/CG127.

4. Mancia G, Parati G. Office compared with ambulatory blood pressure in assessing response to antihypertensive treatment: a meta-analysis. J Hypertens. 2004;22:435–45.

5. Vinyoles E, Felip A, Pujol E, et al. Clinical characteristics of isolated clinic hypertension. J Hypertens. 2008;26:438–45.

6. Banegas JR, Ruilope LM, de la Sierra A, et al. High prevalence of masked uncontrolled hypertension (MUCH) in people with treated hypertension. Eur Heart J. 2014;35:3304–12.

7. Parati G, Ochoa JE, Lombardi C, Bilo G. Assessment and management of blood-pressure variability. Nat Rev Cardiol. 2013;10:143–55.

8. Izzo JL Jr, Chrysant SG, Kereiakes DJ, et al. 24-hour efficacy and safety of triple-combination therapy with olmesartan, amlodipine, and hydrochlorothiazide: the TRINITY ambulatory blood pressure substudy. J Clin Hypertens (Greenwich). 2011;13:873–80.

9. Kario K, Saito I, Kushiro T, et al. Effect of the angiotensin II receptor antagonist olmesartan on morning home blood pressure in hypertension: HONEST study at 16 weeks. J Hum Hypertens. 2013;27:721–8.

10. Mori H, Yamamoto H, Ukai H, COMPATIBLE Study Group, et al. Comparison of effects of angiotensin II receptor blocker on morning home blood pressure and cardiorenal protection between morning administration and evening administration in hypertensive patients: the COMPATIBLE study. Hypertens Res. 2013;36:202–7.

11. Matsui Y, O'Rourke MF, Hoshide S, Ishikawa J, Shimada K, Kario K. Combined effect of angiotensin II receptor blocker and either a calcium channel blocker or diuretic on day-by-day variability of home blood pressure: the Japan Combined Treatment with Olmesartan and a Calcium-Channel Blocker Versus Olmesartan and Diuretics Randomized Efficacy Study. Hypertension. 2012;59:1132–8.